

IN THE CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Where claims have been amended and/or canceled, such amendments and/or cancellations are done without prejudice and/or waiver and/or disclaimer to the claimed and/or disclosed subject matter, and the applicant and/or assignee reserves the right to claim this subject matter and/or other disclosed subject matter in a continuing application.

Listing of Claims:

What is claimed is:

1. (Previously Presented) A double-side image scanner module, comprising:
a paper feeder, further comprising:
a paper-feeding through-channel capable of transmitting a document, the paper-feeding through channel further comprising:
a first-side scanning region,
a second-side scanning region, aligned with the first-side scanning region,
and
a paper-turning region, between the first-side scanning region and the second-side scanning region, said paper-turning region capable of turning the document up side down;
one image extraction apparatus, aligned with both the first- and second-side scanning regions, said one image extraction apparatus capable of extracting images of the first and second sides of the document through the first- and second-side scanning regions, respectively; and
a light transparent channel from both the first- and the second-side scanning regions to the image extraction apparatus, the light transparent channel capable of passing light between the image extraction apparatus and the first and second sides of the documents located at the first- and second-side scanning regions, respectively.

2. (Cancelled)

3. (Previously Presented) The double-side image scanner module according to claim 1, wherein the image extraction apparatus is capable of being driven to enter the light transparent channel immediately under the first-side scanning region to scan the first side, and immediately under the second-side scanning region to scan the second side.

4. (Previously Presented) The double-side image scanner module according to claim 1, wherein the image extraction apparatus is capable of being driven to obtain a constant distance to the first-side scanning region and to the second-side scanning region.

5. (Original) The double-side image scanner module according to claim 1, wherein the distance between the first-side scanning region and the second-side scanning region is no less than the length of the document.

6. (Previously Presented) The double-side image scanner module according to claim 1, wherein the paper-turning region has a length no less than the length of the document.

7. (Previously Presented) The double-side image scanner module according to claim 1, wherein the image extraction apparatus includes a light source capable of adjusting according to images of the first and second sides of the document.

8. (Previously Presented) The double-side image scanner according to claim 1, wherein the image extraction apparatus includes an adjustable light source capable of allowing images of both the first and second sides of the document extracted by the image extraction apparatus with substantially identical quality.

9. (Previously Presented) The double-side image scanner according to claim 1, further comprising a plurality of document transmission members along the paper-feeding through-channel capable of transmitting the document, wherein the document transmission members include a plurality of rollers.

10. (Previously Presented) The double-side image scanner module according to claim 1, wherein the paper feeder further comprises a first sensor capable of detecting the document

entering the first-side scanning region, and a second sensor capable of detecting the document entering the second-side scanning region.

11. (Previously Presented) The double-side image scanner module according to claim 10, wherein the first and second sensors are capable of switching on/off manually to determine which side of the document is to be scanned.

12. (Previously Presented) The double-side image scanner module according to claim 10, wherein the first and second sensors are in electrical or optical communication with the image extraction apparatus, and are capable of transmitting a signal to the image extraction apparatus upon detection of the document.

13. (Previously Presented) The double-side image scanner module according to claim 12, wherein the image extraction device includes a light source capable of adjusting according to the detection of the document by the first and second sensors.

14. (Previously Presented) A double-side image scanner module, comprising:
a paper feeder, further comprising:
 a first paper-transmission channel capable of receiving a document with a first side thereof facing downwardly,
 a second paper-transmission channel capable of receiving the document with a second side thereof facing downwardly, and
 a paper-turning region, connected between the first and second paper-transmission channels to transmit the document from the first paper-transmission channel to the second paper-transmission channel;
an image extraction apparatus capable of extracting images of the first and second sides of the document;
a light transparent channel extending between the first or the second paper-transmission channel and the image extraction apparatus; and
wherein the image extraction apparatus is capable of being driven to adjust a distance between the image extraction apparatus and the first and second paper-transmission channels when the first or second sides of the document are to be scanned through the light transparent channel.

15. (Previously Presented) The double-image scanner according to claim 14, wherein the image extraction apparatus is capable of being driven to enter the light transparent channel immediately under the first-side scanning region, and immediately under the second-side scanning region.

16. (Previously Presented) The double-side image scanner module according to claim 14, wherein the image extraction apparatus is capable of being driven to obtain a constant distance to the first-side scanning region and to the second-side scanning region.

17. (Previously Presented) The double-side image scanner according to claim 14, further comprising a plurality of transmission members along the first paper-transmission channel, the paper-turning region and the second paper-transmission channel, the plurality of transmission members capable of transmitting the document, and wherein the plurality of document transmission members include a plurality of rollers.

18. (Previously Presented) The double-side image scanner according to claim 14, wherein the second paper-transmission channel is substantially parallel to the first paper transmission channel, and wherein the paper-turning region is substantially perpendicular to both the first and the second paper-transmission channels.

19. (Original) The double-side image scanner according to claim 14, wherein the first paper-transmission channel is positioned above the second paper-transmission channel.

20. (Previously Presented) The double-side image scanner according to claim 14, further comprising a first sensor substantially located at the first paper-transmission channel and a second sensor substantially located at the paper-turning region, said first and second sensors capable of selectively activating single-side scanning between the first and the second sides or double-side scanning thereof.

21. (Previously Presented) The double-side image scanner module according to claim 14, wherein the image extraction apparatus further comprises an adjustable light source capable of allowing the images of the first and second sides of the document extracted thereby to have substantially identical quality.

22. (Previously Presented) The double-side image scanner module according to claim 14, wherein the first paper-transmission channel, the paper-turning region, and the second paper-transmission channel construct a substantially U-shaped paper-feeding through-channel.

23. (Previously Presented) A scanning method, comprising:

feeding a document into a paper-feeding through-channel of a double-side image scanner module with a first side of the document facing an image extraction apparatus while passing over a light transparent channel;

scanning an image of the first side by the image extraction apparatus through the light transparent channel;

transmitting the document along the paper-feeding through-channel until a second side of the document is facing the image extraction apparatus while passing over the light transparent channel at a different height; and

scanning an image of the second side by the image extraction apparatus through the light transparent channel.

24. (Previously Presented) The method according to claim 23, further comprising adjusting a light source of the image extraction apparatus before scanning the first side of the document.

25. (Previously Presented) The method according to claim 24, further comprising adjusting a light source of the image extraction apparatus before scanning the second side of the document.

26. (Previously Presented) The method according to claim 23, further comprising adjusting a distance between the first side and the image extraction apparatus before scanning the first side.

27. (Previously Presented) The method according to claim 23, further comprising adjusting a distance between the second side and the image extraction apparatus before scanning the second side.

28. (Previously Presented) A scanning method comprising:

feeding a document into a first paper-transmission region with a first side of the document facing an image extraction apparatus;

adjusting a light source emitting light incident onto the first side when the first side is to be scanned, so as to obtain an image thereof;

transmitting the document through a paper-turning region and turning the document with a second side of the document facing the image extraction apparatus; and

adjusting the light source emitting light incident onto the second side when the second side is to be scanned, so as to obtain an image of the second side.

29. (Previously Presented) The method according to claim 28, further comprising determining whether the first side is to be scanned, wherein the light source remains unchanged when the first side is not to be scanned.

30. (Previously Presented) The method according to claim 28, further comprising determining whether the second side is to be scanned, wherein the light source remains unchanged when the second side is not to be scanned.

31. (Previously Presented) The method according to claim 28, wherein the light source is so adjusted for scanning the first side and the second side that the quality of the images obtained therefrom is substantially identical.

32. (Previously Presented) A scanning method comprising:

feeding a document into a first paper-transmission region with a first side of the document facing an image extraction apparatus;

adjusting a distance between the image extraction apparatus and the first side when the first side is to be scanned, so as to obtain an image thereof;

transmitting the document through a paper-turning region and turning the document with a second side of the document facing the image extraction apparatus; and

adjusting a distance between the image extraction apparatus and the second side when the second side is to be scanned, so as to obtain an image of the second side.

33. (Previously Presented) The method according to claim 32, wherein the distance between the image extraction apparatus and the first side is substantially the same as that between the image extraction apparatus and the second side.

34. (Previously Presented) The method according to claim 33, wherein the distance between the image extraction apparatus to the first and the second sides are so adjusted to obtain substantially the same image quality from the first and second sides.

35. (Previously Presented) The method according to claim 32, further comprising determining whether the first side is to be scanned and determining whether the second side is to be scanned.

36. (Previously Presented) The method according to claim 32, wherein the first side of the document faces the image extraction apparatus while passing over a light transparent channel and the second side of the document faces the image extraction apparatus while passing over the light transparent channel at a different height.

37. (Previously Presented) The method according to claim 28, wherein the first side of the document faces the image extraction apparatus while passing over a light transparent channel and the second side of the document faces the image extraction apparatus while passing over the light transparent channel at a different height.

Claims 38-42. (Cancelled)

43. (Previously Presented) An apparatus, comprising:
means for adjusting a light source emitting light incident onto a first side of a document;
means for transmitting the document through a paper-turning region and turning the document with a second side of the document facing the light source; and
means for adjusting the light source emitting light incident onto the second side of the document.

44. (Previously Presented) The apparatus of claim 43, further comprising means for determining whether the first side is to be scanned, wherein the light source remains unchanged when the first side is not to be scanned.

45. (Previously Presented) The apparatus of claim 43, further comprising means for determining whether the second side is to be scanned, wherein the light source remains unchanged when the second side is not to be scanned.

46. (Previously Presented) The apparatus of claim 43, wherein the light source is so adjusted for scanning the first side and the second side that the quality of the images obtained therefrom is substantially identical.

47. (Previously Presented) The apparatus of claim 43, wherein the first side of the document faces the light source while passing over a light transparent channel and the second side of the document faces the light source while passing over the light transparent channel at a different height.

48. (Previously Presented) An apparatus, comprising:
means for adjusting a distance between an image extraction apparatus and a first side of a document when the first side is to be scanned through a light transparent channel;
means for transmitting the document through a paper-turning region and turning the document with a second side of the document facing the image extraction apparatus; and
means for adjusting a distance between the image extraction apparatus and the second side when the second side is to be scanned through a light transparent channel.

49. (Previously Presented) The apparatus of claim 48, wherein the distance between the image extraction apparatus and the first side is substantially the same as that between the image extraction apparatus and the second side.

50. (Previously Presented) The apparatus of claim 49, wherein said means for adjusting a distance between the image extraction apparatus and the first and second sides are adjusted to obtain substantially the same image quality from the first and second sides.

51. (Previously Presented) The apparatus of claim 48, further comprising means for determining whether the first side is to be scanned and determining whether the second side is to be scanned.

52. (Previously Presented) The apparatus of claim 48, wherein the first side of the document faces the image extraction apparatus while passing over a light transparent channel and the second side of the document faces the image extraction apparatus while passing over the light transparent channel at a different height.

53. (Previously Presented) An apparatus, comprising:

a paper-feeding through-channel comprising a first-side scanning region, a second-side scanning region, and a paper-turning region, wherein the paper-turning region is positioned between the first-side scanning region and the second-side scanning region and is capable of turning a document up side down between the first and second side scanning regions; and

an image extraction apparatus capable of extracting images of the first and second sides of the document through the first- and second-side scanning regions, respectively, wherein the image extraction apparatus comprises a light source capable of adjusting according to images of the first and second sides of the document.

54. (Previously Presented) The apparatus of claim 53, wherein the image extraction apparatus is capable of being driven to obtain a constant distance to the first-side scanning region and to the second-side scanning region.

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